

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

REC'D 29 NOV 2004

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Applicant's or agent's file reference C02038WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP 03/12022	International filing date (day/month/year) 29.10.2003	Priority date (day/month/year) 30.10.2002
International Patent Classification (IPC) or both national classification and IPC C09K11/00		
Applicant COVION ORGANIC SEMICONDUCTORS GMBH et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
 - ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 25.05.2004	Date of completion of this report 25.11.2004
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Koessler, J-L Telephone No. +49 89 2399-7217 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/EP 03/12022**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*

Description, Pages

1-32 as originally filed

Claims, Numbers

1-23 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/EP 03/12022**

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-15, 20,23 24
	No: Claims	16-19 21 22
Inventive step (IS)	Yes: Claims	1-15 20 23 24
	No: Claims	16-19 21 22
Industrial applicability (IA)	Yes: Claims	1-24
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP 03/12022

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Cited documents

The following documents (D) are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

- D1: US 2001/041802 A1 (PATEL JYOTI R ET AL) 15 November 2001 (2001-11-15)
- D2: US-B1-6 423 519 (BERLIN VIVIAN ET AL) 23 July 2002 (2002-07-23)
- D3: EP-A-1 078 917 (ONO PHARMACEUTICAL CO) 28 February 2001 (2001-02-28)
- D4: WO 95 25086 A (EISAI CO LTD ;NAGASU TAKESHI (JP); HISHINUMA IEHARU (JP); YOSHIMAT) 21 September 1995 (1995-09-21)
- D5: WALLACE ET AL.: SYNTHESIS, 2001, pages 1784-1789, XP001179410
- D6: NAHM S ET AL: 'N-METHOXY-N-METHYLAMIDES AS EFFECTIVE ACYLATING AGENTS' TETRAHEDRON LETTERS, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 22, no. 39, 1981, pages 3815-3818, XP002019576 ISSN: 0040-4039
- D7: WO 00 22026 A (COVION ORGANIC SEMICONDUCTORS (US)) 20 April 2000 (2000-04-20) cited in the application
- D8: DE 198 46 767 A (AVENTIS RES & TECH GMBH & CO) 20 April 2000 (2000-04-20)
- D9: WO 97 33323 A (UNIAX CORP) 12 September 1997 (1997-09-12)

1 Novelty (Art. 33(2) PCT)

The present application relates to a method for the synthesis of monomers useful in the manufacture of semiconductive polymers and to compounds suitable as starting to perform said method of synthesis.

Document D1 relates to glucocorticoid receptor antagonists and describe two compounds (p. 17 column 2 ex. 5B and 5C) which fall under the scope of claims 16-19, 21, 22.

Document D2-D6 relate to compounds structurally close to those claimed of claim 16

but do not possess a polymerisable on each of the aromatic rings.

Document D7 concerns N-methoxy-N-methylamides and their reaction with Grignard and organolithium to produce ketones.

Documents D8-D10 relate to the preparation of fluorene derivatives and polymers thereof for the preparation of luminescent materials.

The present application does not meet the requirement of Article 33(2) PCT, because the subject-matter of claims 16-19, 21, 22 is not new.

The requirement of Article 33(2) is fulfilled concerning the subject-matter of claims 1-15, 20, 23.

2 Inventive step (Art. 33(3) PCT)

Document D6 is considered to represent the closest prior art.

The problem underlying the present application is to be regarded as to provide an improved method for the production of fluorene derivatives for the preparation of semiconductive polymers.

The solution of the technical problem consists in the transformation of the ester of a biphenyl-2-carboxylic acid into an N-methoxy-N-methylamide which does not lead to over-reaction when treated with a Grignard or an organolithium reagent.

None of the cited documents nor a combination of the teaching thereof would have fairly prompted the skilled person to the method of claims 1-15 and to the N-methoxy-N-methylamides of claims 20 and 23 and the use of a N-methoxy-N-methylamide according to claim 24.

The requirements of Article 33(3) is fulfilled concerning the subject-matter of claims 1-15, 20, 23, 24.

3 Industrial applicability (Art. 33(4) PCT)

The subject-matter of claims 1-24 is considered to be industrially applicable.

4 Clarity (Art. 6 PCT)

The term "polymerisable group P" used/referred to in claims 12, 13, 16-19, 22-24 is vague and unclear and leaves the reader in doubt as to the meaning of the technical features to which it refers, thereby rendering the definition of the subject-matter of said claims unclear (Article 6 PCT).

The vague and imprecise statement concerning the "spirit" of the invention in the description on page 32 line 12 implies that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in lack of clarity of the claims (Article 6 PCT) when used to interpret them (see the Guidelines, C-III, 4.3a). This statement should therefore be amended to remove this inconsistency.

5 Other defects of the application

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D6 is not mentioned in the description, nor is this document identified therein.

The publication number WO 00/00374 mentioned on page 1 line 35 is erroneous. Likewise the reference mentioned on p. 20 l. 10 is also probably erroneous.

The applicant's attention is also drawn to the following clerical errors:

P. 4 l. 4, 10, 16, 33, p. 5 l. 3, 8, 13, p. 16 l. 9, p. 15 l. 6, 12, 28, p. 16 l. 5: "CH₂", the number 2 should be written in subscript.

Claim 1: "heteroary" (definition of R and R¹).

Claim 23: "An".